Comparison of Penile Prosthesis Methods: Which is More Successful?

Penil Protez Yöntemlerinin Karşılaştırılması: Hangisi Daha Başarılı?

Selçuk Esengen[1], İsmail Nalbant[2], Ufuk Öztürk[3], Can Tuygun[3], Serkan Yıldız[4], Musa Ekici[5], Muhammed Abdurrahim İmamoğlu[6]
[1]Polatlı Devlet Hastanesi, Ankara, [2]Ordu Universitesi Tıp Fakültesi, Ordu,
[3]Dışkapı Yıldırım Beyazıt Eğitim Araştırma Hastanesi, Ankara, [4]Siirt Devlet Hastanesi, Siirt,
[5]Hitit Universitesi Tıp Fakültesi, Çorum, [6]Bozok Universitesi Tıp Fakültesi, Yozgat, Türkiye

Öz

Amaç: Ereksiyon bozukluğu nedeniyle, bükülebilir ve iki parçalı şişirilebilir penil protez implantasyonu yapılmış hasta ve eşlerinin memnuniyetlerini saptamak. Gereç ve Yöntem: Şubat 2008 ve Mayıs 2016 yılları arasında, bükülebilir (Promedon-Tube) (n=40) veya iki parçalı şişirilebilir (Ambicor) (n=25) penil protez implantı yapılmış hastalara, postoperatif 6. aydan sonraki takiplerde, hasta ve eşlerine uygulanan modifiye EDITS (Erectile Dysfunction Inventory of Treatment Satisfaction, patient and partner) verilerinin analizi yapıldı. Bulgular: Çok memnunum şeklinde kayıt edilen, bükülebilir penil protezli hastaların ve eşlerinin oranları sırasıyla %77.5 ve %87.5, iki parçalı şişirilebilir penil protezli hastaların ve eşlerin ise sırasıyla %88 ve %96'di. Hastaların ve eşlerin memnuniyet oranları arasında istatistiksel olarak fark saptanmadı. İki farklı protezi kullanan hastaların diğer modifiye EDITS sorularına verdikleri cevaplar arasında da istatistiksel fark saptanmadı. Hastalanın tümünde, hasta memnuniyeti % 80 (52/65), eş memnuniyeti ise % 89.2 (58/65)'di. Tartışma: Her iki penil protez yönteminin de yüksek hasta ve eş memnuniyeti sağladığı görülmüştür.

Anahtar Kelimeler

Hasta Memnuniyeti; Protez ve İmplant; Penis

Abstract

Aim: To compare patient and partner satisfaction rates after implantation of malleable and two piece inflatable penile protheses in the treatment of erectile dysfunction. Material and Method: The modified Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS) questionnaire was administered six months after implantation of penile prostheses in 65 patients. 40 patients with malleable (Promedon-Tube) prostheses and 25 patients with two- piece inflatable (Ambicore) prostheses between February 2008 and May 2016 and the results were analyzed. Results: The percentages of patients with malleable penile prostheses and partners who reported they were very satisfied with their prostheses were 77.5% and 87.5% respectively. For patients with two- piece inflatable penile prostheses and partners these percentages were 88% and 96%. There was no statistical significance between patients and partners in terms of satisfaction. There was no statistically significant difference between patients using the two different penile protheses in terms of answers to the modified EDITS questionnaires. For patients and partners the overall satisfaction percentages were 80 % (52/65), and 89.2 % (58/65) respectively. Discussion: Both penile prostheses provided high patient and partner satisfaction

Keywords

Personal Satisfaction; Prostheses and Implants; Penis

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Corresponding Author: İsmail Nalbant, Ordu Universitesi Tıp Fakültesi, 52200, Ordu, Türkiye.
T.: +90 4522250185 F.: +90 4522250190 E-Mail: nalbant60@yahoo.com

Introduction

Implantation of a penile prosthesis is recommended in organic causes of erectile dysfunction for patients in whom medical treatment (oral, intracavernosal injection) and non-surgical external devices are ineffective or contraindicated and in cases where the patient does not want to use these treatments [1,2].

The first step in penile prosthesis implantation is the right choice of prosthesis. The patient and his partner should be fully informed about the features and complications of treatment. The patient and partner should be told that the device will be placed in the corpus cavernosum after its destruction, that the treatment is irreversible and that spontaneous erections after surgery will not be possible. The procedure of the patient and his partner should be discussed so they both have clear and realistic expectations. To facilitate the usability of the devices, it is important to demonstrate and to explain suitable prosthesis types and how to use them to the patient by using prosthesis models [3].

Today, penile prostheses have become safely used devices with reduced rates of mechanical disruption and complications. Prostheses can be one-piece flexible and two or three-piece inflatable. While rigidity is obtained in all prostheses, natural penile relaxation and cosmetic outcomes can be different [3].

When compared with flexible and two-piece inflatable models, three-piece inflatable prostheses may allow for an almost natural erection and a better cosmetic appearance because of being softer during the relaxed phase [1,3,4].

However, for various reasons (such as suprapubic operations, dexterity) flexible or two-piece inflatable prostheses can be implanted in patients [1].

In this study, we evaluated patient and partner satisfaction after flexible or two-piece inflatable penile prostheses implantation.

Material and Methods

A total of 65 patients, who were implanted with either flexible or two-piece inflatable penile prostheses in our clinic between February 2008 and May 2016 who were and actively using the prosthesis, were included in our study. Demographic and operational characteristics of the patients were evaluated retrospectively. In the choice of penile prosthesis, mental, physical and psychological characteristics of the patients were taken into consideration and the decisions were made in discussion with the patients.

Patient and partner satisfaction was assessed using the modified Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS) questionnaire [5].

The modified EDITS includes six items questioning the satisfaction created by the current treatment, expectation level, suitability for continuous use, ease of use, satisfaction and confidence level during sexual intercourse and partner satisfaction. Answers from the questionnaire were recorded in three categories (Table 1). Also the overall partner satisfaction was evaluated in three categories (Table 2) [5-7]. Success criteria; were determined for both patient and partner satisfaction.

Statıstıcal analysıs

All statistical analyses were performed using SPSS for Windows version 15 and the satisfaction of patients and partners was evaluated both generally and separately for each types of prostheses. The differences were assessed using the Mann-Whitney test and $p \leq 0.05$ was considered statistically significant.

Results

Data from 40 and 25 patients who had been implanted with either a flexible (Promedon-Tube®, Cordoba, Argentina) or a two-piece inflatable (AMS Ambicor®, Minnesota, USA) penile prosthesis, were evaluated retrospectively; all patients had experienced organic causes of erectile dysfunction. Mean age, mean follow-up period and mean hospitalization periods of the patients with flexible penile prosthesis were 61 (44-74) years, 52 (6-71) months, and 3.4 (1-6) days, respectively. Mean age, mean follow-up period and mean hospitalization periods of the patients with two-piece inflatable penile prosthesis were 59 (47-74) years, 44 (6-62) months, and 3.2 (1-6) days, respectively. There was no statistical difference between ages, hospitalization periods or follow-up periods ($p = 0.37$, $p = 0.698$ and $p = 0.452$, respectively).

Overall, the patients included in the study had additional disorders and features alone or in combination including diabetes mellitus in 30, hypertension in 12, radical prostatectomy history in 6 and Peyronie's disease in 2.

We observed penile pain in 5 patients in the flexible penile prosthesis group and mild penoscrotal hematoma in 3 patients in the two-piece inflatable penile prosthesis group in the postoperative period; they all healed by medical treatment.

One flexible prosthesis patient had wound infection detected at controls two weeks after discharge. Because the infection did not improve despite medical therapy, we removed the patient's unilateral prosthesis and reimplantated a new flexible penile prosthesis after six months. No mechanical failure was observed in any prosthesis. Results from the modified EDITS questionnaire are shown in Table-1.While two-piece inflatable prostheses seem to provide some higher satisfaction rates as shown in Table-1, the difference was not statistically significant.

Table 2 shows a comparison of the satisfaction rates between patients and their partners and across partners in the two treatment groups; there were no statistically significant differences. The reasons given by patients who were not satisfied or who were only partially satisfied for flexible prostheses were difficulty concealing [6] and penile shortening and for the inflatable prostheses, twisting during intercourse [2]. Unnatural appearance of the prosthesis was also expressed by partners as a reason for partial dissatisfaction [2].

Overall patient and partner satisfaction rates were 81.5% (31+22/65) and 90.7% (35+24/65), respectively.

Discussion

Penile prosthesis implantation is a safe and effective treatment procedure providing an artificial erection for satisfactory sexual intercourse with a high rate of patient and partner satisfaction [3,4].

Different types of prostheses can have positive or negative

Table 1. Comparison of the answers to modified EDITS questionnaire

Modified EDITS questionnaire	Grade of satisfaction	Flexible penile prosthesis % (n)	Two-piece inflatable penile prosthesis % (n)
Overall, are you satisfied with your penile prosthesis?	I am not satisfied I'm partially satisfied I'm very satisfied	5 (2/ 40) 17.5 (7/ 40) 77.5 (31/ 40)	0 (0/ 25) 12 (3/ 25) p=0.108 88 (22 /25)
How much of your expectations did penil prosthesis met?	Did not meet Partially met Fully met	0 (0/ 40) 40 (16/ 40) 60 (24/ 40)	0 (0/ 25) 8 (2/ 25) p=0.096 92 (23/ 25)
How often do you use use your penile prosthesis?	almost never sometimes very often	7.5 (3/ 40) 37.5 (15/ 40) 55 (22/ 40)	0 (0/ 25) 16 (4/ 25) p=0.076 84 (21/ 25)
Is it easy for you to use penile prosthesis?	not easy partially easy very easy	10 (4/ 40) 40 (16/ 40) 50 (20/ 40)	0 (0/ 25) 28 (7/ 25) p=0.165 72 (18/ 25)
Do you trust your ability of pleasure during intercourse?	no partly fully	0 (0/ 40) 30 (12/ 40) 70 (28/ 40)	0 (0/ 25) 12 (3/ 25) p=0.108 88 (22/ 25)
How is the satisfaction of your partner?	not satisfied partially satisfied very satisfied	5 (2/ 40) 22.5 (9/ 40) 72.5 (29/ 40)	0 (0/ 25) 4 (1/ 25) p=0.112 96 (24/ 25)

Table 2. Penile prosthesis satisfaction rates of the patients and partners.

FLEXIBLE PENILE PROSTHESIS	I am not satisfied	5 (2/ 40)	0 (0/ 40)	
	I'm partially satisfied	17.5 (7/ 40)	12.5 (5/ 40)	
	I'm very satisfied	77.5 (31/ 40)	87.5 (35/40)	p=1.00
TWO-PIECE PENILE PROSTHESIS	I am not satisfied	0 (0/ 25)	0 (0/ 25)	
	I'm partially satisfied	12 (3/ 25)	4 (1/ 25)	
	I'm very satisfied	88 (22/ 25)	96 (24/ 25)	p=0.667
				p=0.799

characteristics that affect patient and partner satisfaction. While flexible prostheses are easy to implant and do not contain parts that could cause mechanical damage and have the advantage of low cost, they also have disadvantages such as permanent rigidity, difficulties concealing and that they require endoscopic procedures. On the other hand, inflatable prostheses have advantages such as cosmetic appearance and relaxation state that mimics a natural erection (only partially in two-piece inflatable prostheses) but also disadvantages such as requiring dexterity, complicated structure creating mechanical damage and high costs [3,7,8].

Patient and partner satisfaction is a complex issue affected by many factors such as unique characteristics of the prosthesis, postoperative complications (infection, mechanical degradation, erosion), soft glans syndrome, short appearance of the penis and frustration, despite detailed information having been provided preoperatively [1,3,9]. Our study showed patient and partner satisfaction rates as 81.5% and 90.7%, respectively.

The flexible penile prosthesis that we implanted in our patients is an effective and reliable prosthesis that can be bent up to 130 degrees [8,10]. Mechanical degradation or erosion did not occur for any of our patients during follow-up; only one patient was reimplanted with a new prosthesis due to infection after 6 months.

We compared our data with studies in the literature reporting on the use of different types (flexible and inflatable) of prostheses. In a study by Natali et al. that administered the modified EDITS questionnaire by e-mail for different types of penile prostheses, patient satisfaction rates (patients who answered -'I'm very satisfied-') were found to be 56% and 67% for flexible and two-piece inflatable prostheses, respectively [1]. Answers were recorded in five categories and were rated 'I am very satisfied'- and- 'I' m quite satisfied' at 75% and 81%, respectively [1]. Kadim J Zabar et al. recorded the patient satisfaction rate as 88% for inflatable prostheses in their 56 patient series of flexible and two-piece prostheses [11]. Turna et al. compared patients with flexible and inflatable prostheses in their study using the modified EDITS questionnaire; very satisfied was the response for 70% and 88% flexible and inflatable prostheses, respectively [7]. In their series of 108 cases, Rogel Berto et al. reported the rate of satisfaction (total of patients who answered either 'I'm very satisfied' -or- 'I'm satisfied'-) as 79% and 70% for flexible and inflatable prostheses, respectively [12]. In another two studies that used modified EDITS questionnaire in patients with two-piece inflatable prostheses, the rate of patients who answered as 'I'm satisfied' -or- 'I'm very satisfied' were 90.6% and 82.6%, respectively, in the first study and those who answered either 'I'm satisfied' -or- 'I'm quite satisfied' was reported as 85% [6,13] in the second. In our study the rates of the patients who responded to the question: 'In general, are you satisfied with your prosthesis? ' as -'I'm very satisfied' - were 77.5% and 88% in the flexible and two-piece inflatable prostheses groups, respectively. Our results were found to be compatible with the literature.

In a series of 46 patients, the satisfaction rate (response: - 'I'm very satisfied' -) was evaluated by use of the modified EDITS questionnaire and by face-to-face interviews at the 6th month postoperatively the satisfaction rates were 34.8% and 74% in flexible and two-piece inflatable prosthesis patients, respectively [14]. These rates, particularly for the flexible devices, were lower than our results. As reported in another study, we think these satisfaction rates may have risen between the 6-month and 1-year post-implantation [15].

In clinical studies, partner satisfaction rates have mostly been reported depending on only the patient's statements. In the study by Natali and et al. partner satisfaction rates (-'I'm very satisfied'-or- 'I'm quite satisfied') were 75% and 91% for flexible and two-piece inflatable prostheses, respectively [1]. While in another study that used the modified EDITS questionnaire, partner satisfaction rates were 73.3% and 90% for flexible and inflatable prostheses, respectively [7]. In some studies, partner satisfaction rates with inflatable prosthesis were 76%, 84% and 91% [6,16,17]. We found partner satisfaction rates in our study to be 87.5% and 96% for flexible and two-piece inflatable prostheses, respectively; our results were similar to the results of other studies in the literature.

Salama et al. designed a study to interview the patient and his partner separately. They evaluated physical, sexual and emotional changes after prosthesis implantation, penis size during intercourse, and a comparison with previous treatments. Partner and patient satisfaction rates were found to be 57% and 70%, respectively. This is lower than the partner satisfaction rate of our study. Lower rates in the study were thought to be related to separate interviews with the partners [18].

The reasons for dissatisfaction or partial satisfaction were shortening in the length of penis and difficulty in concealing for a flexible prostheses and twisting during intercourse for an inflatable prosthesis. Unnatural appearance of the penis was found to be a reason for partial satisfaction in partners. In another study that had a; higher rate of flexible prostheses, penile shortness, appearance of the penis, pain and soft glands have been reported to be causes of dissatisfaction [10]. Another trial reported reasons for dissatisfaction as cosmetic appearance, high levels of expectation and flask glands, especially in flexible prostheses [11]. There are also studies that the reported twisting of prostheses was associated with poor satisfaction rates [16]. Turna et al. reported the reasons for dissatisfaction in flexible and inflatable prostheses as unrealistic expectations, insufficient rigidity in inflatable prostheses, unnatural appearance of the penis and difficulty of concealing a flexible prosthesis [7]. None of our patients had pain, tension or soft glans. Other reasons for dissatisfaction were compatible with the literature. The complaint of 'unnatural penile appearance' has also been examined in some trials and partners have reported '- discomfort from the postcoital sensation of cold plastic material-' [18]. Before implantation, positive and negative aspects of the planned prosthesis, patient and partner expectations, nature of the operation and side effects that may occur after the operation should be discussed and approved with the patient and partner. These interviews will reduce postoperative patient and partner disappointment and can provide for faster adaptation to and ease of use of the prosthesis.

The limitations of our study are; that it is a retrospective study, interviewing the couples together and the small number of patients. On the other hand, the interviews with the partners is a positive aspect of our study.

Results of satisfaction for both penile implantation methods were found to be similar for patients and partners. We think that prospective multicenter studies with larger number of patients will allow us to measure the satisfaction rates of penile prosthesis-implanted patients and their partners to understand the reasons for dissatisfaction much better.

Compliance with Ethical Standards

The authors declare no conflicts of interest. This study has been granted local ethical committee approval and has been carried out according to the ethical standards of our institution and the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Competing interests

The authors declare that they have no competing interests.

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